Supplemental Information Report

Review of New Information
And Changed Circumstances in the
Hollow Project Area
Resulting from the Battle Creek Fire
November 1, 2002

Introduction

In 1994 and 1995 an environmental analysis was conducted and an environmental assessment (EA) was prepared which documented the effects of implementing alternative management strategies for the Hollow Project Area. On June 20, 1995 District Ranger Frank Cross made a decision to implement Alternative 2 with modifications. The decision was appealed and subsequently affirmed by the R2 Appeal Deciding Officer on September 25, 1995. Thereafter, litigation proceedings were initiated by the appellants (plaintiffs). The District Court denied the plaintiffs' motion for summary judgment and granted judgment in favor of the Forest Service. The plaintiffs appealed to the 10th Circuit Court of Appeals, which affirmed the judgment of the District Court and dismissed the appeal on August 21, 2001. The Hollow EA and Decision Notice authorizes implementation of the Hollow Timber Sale. This sale is currently going through the sale preparation process.

Recently changed circumstances have occurred since the Decision, which may affect the project. This supplemental information report (SIR) documents my review of these changed circumstances, and my determination concerning continued implementation of District Ranger Cross' decision of June 20, 1995, relative to the Hollow Timber Sale.

This review is conducted pursuant to Forest Service policy directives in FSH 1909.15, Chapter 10, Section 18. This determination is purely administrative and is not able to be appealed.

Background: The Hollow Timber Sale

The Hollow Timber Sale area is located about 8 air miles southwest of Rapid City, South Dakota on lands administered by the Mystic Ranger District. It encompasses over 2,700 acres of National Forest System lands and is interspersed with about 1,100 acres of other ownership. The topography is characterized by uplifted rock outcrops, rolling to broken timbered terrain with moderate to steep slopes, and is dissected by shallow to deep draws and canyons. The vegetation communities in the area are dominated by ponderosa pine.

The Hollow EA and Decision for the Hollow Timber Sale is hereby incorporated by reference in this SIR. A copy is on file at the Mystic Ranger District Office in Rapid City, South Dakota. The objectives of this project include: silviculturally treating vegetation per Forest Plan direction; increasing habitat diversity; increasing visual diversity; and management for fire and insect risk (EA, page 1-3).

There were four key issue categories generated through public involvement that were addressed in the EA (EA, page 1-5). They are summarized as follows:

- Concerns for protecting and improving wildlife habitat.
- Protect and enhance visual diversity.
- Move vegetative condition toward Forest Plan levels with silvicultural treatment.
- Concern for road impacts plus the desire for more/less access.

The effects of implementing Alternative 2 as modified were disclosed in the EA. This discussion can be found in the EA, Chapter 3, Environmental Effects.

Changed Circumstances Since the Decision

Since District Ranger Cross' decision on this project, conditions within the Hollow Timber Sale area have changed. These changes may have a bearing on management in the area, and it is proper to review them at this time.

Changed Circumstance #1: April 2000 Snowstorm damage

Background. In April 2000, a major spring snowstorm occurred. This storm deposited heavy wet snow throughout much of the east side of the Black Hills and was accompanied with high winds. As a result of this storm, large numbers of pine trees were broken off and some were uprooted throughout this area.

Changes to Hollow Timber Sale Due to Snowstorm Damage. Within the Hollow Project area similar damage occurred. Field reconnaissance revealed that most of the damaged pine were less than 9" in diameter and were scattered throughout the stands and units within the Hollow Timber Sale.

Changes to Effects Disclosed in the EA. This snowstorm damage has the silvicultural effect of providing a "natural thinning". This has some minor beneficial effects of opening up stands and allowing some additional growth to adjacent pine that may have been overcrowded. The amount of damage and mortality was too small to have any measurable effect on the timber resource. From a wildlife habitat perspective this damage has likely contributed to greater stand diversity and provided some additional snags. Pockets of down and damaged trees have altered travel routes for some game species but also provide an element of increased security.

The downed and broken biomass has created a substantial accumulation of fuels that poses an increased fire hazard within the Hollow Project area. Efforts to "clean up" concentrations along private land have been accomplished in the form of "fuel breaks" wherein all dead fuels were bucked and piled for removal by burning. Increased fuels generated by the storm exist sporadically within some of the timber sale units, primarily on the north end of the sale.

Additional fuels reduction efforts will take place within timber sale units and throughout the remainder of the sale area using Fuels and KV funding.

Changed Circumstance #2: June 2000 Hailstorm damage

Background. During the early summer of 2000 a major hailstorm occurred in very limited portions on the north end of the Hollow project area. Overall, several thousand acres were affected, but primarily outside the area to the north. Damage consisted of light to severe defoliation and limb damage. The effect was primarily visual in the moderate and light damage areas. In the severely damaged areas mortality has occurred, especially in private landholdings. Landowners have salvaged and cut much of the damaged pine.

Changes to Hollow Timber Sale Due to Hailstorm Damage. Within the Hollow Project area limited damage has occurred. Field reconnaissance revealed that most of the damage lies north of the Hollow Timber Sale.

Changes to Effects Disclosed in the EA. The amount of damage within the Hollow Timber Sale was too small to have any measurable effect on resources. The effects of such a natural event has been a decrease in the visual quality of the Forest in this general area; increase in susceptibility to Ips and Mountain Pine Beetle attack; increase in susceptibility to diplodia tip blight; and an increase in fuels. The removal of dead trees has been completed adjacent to travel corridors and along private land boundaries to reduce beetle buildups and fire risk.

Changed Circumstance # 3: August 2002 Battle Creek Fire

Background. On August 16, 2002, the Battle Creek Fire ignited near the Children's Home along South Rockerville Road. The fire spread rapidly and overpowered suppression efforts. By the time it was declared contained on August 25, 2002, it had burned 12,450 acres (approximately 9,120 acres of National Forest System lands and 3,330 acres of private land). This fire impacted portions of three timber sales: Beagle Timber Sale south of Highway 16 and both Hollow and Bitter Timber Sale just north of Highway 16 (see attached area map).

An initial assessment of the fire was conducted, effects disclosed and management recommendations made—see Final Battle Creek Fire Rapid Assessment Team (Battle RAT) Report, September 2002. The Battle RAT Report is hereby incorporated by reference into this SIR. This report correlated tree mortality with fire intensity and estimated that, within high intensity burn areas, tree mortality would be 90-100%. Within moderate intensity burn areas, tree mortality varied considerably from 10% to 100%. And within low intensity burn areas tree mortality would be less than 20%. Additionally, the report projected that ponderosa pine trees with less than 1/3 green crown remaining would eventually die as a result of the fire.

Changes to the Hollow Timber Sale due to the Fire. The Hollow Timber Sale, as initially configured, consisted of approximately 651 commercial treatment acres within a sale area of about 2788 acres. An estimated 640 acres of the sale area was burned by the Battle Creek Fire (about 20 percent of the sale area). Approximately one-third (223 acres) of the area that burned within the Hollow Timber Sale area boundary now contains dead trees that could be salvaged if harvested quickly.

The changed conditions warrant adjustments to the Hollow Timber Sale. These adjustments include harvesting dead trees included both within and adjacent to units as initially configured within the sale area. Specifically, these adjustments include harvesting fire-killed trees in portions of four initial Hollow Timber Sale Units (Units 1, 2, 4 and 6), and dead trees in two newly configured salvage units (hereafter referred to as Units 11 and 12).

Salvage potential is based on a number of criteria, such as relatively gentle slopes which minimizes potential negative effects to soils, and where the dead trees are of sufficient size and large enough numbers to provide for economic removal. Of the approximately 223 acres of timber that was killed and considered salvageable, about 63 acres are within initially planned sale units, 66 acres were adjusted out of an initial sale unit and incorporated into a new salvage unit (from Unit 6 to Unit 11), and 94 acres were added either to an initial unit or as part of a new salvage unit. The 94-acre addition represents a 14% increase over initial treated acres.

Table 1 summarizes pre and post-burn conditions in Hollow Timber Sale by harvest unit.

Table 1. Sale Area Summary

Unit						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
TOTALS						

***** Total net cruise volume

Fire-killed trees within sale units remain commercially valuable if removed to a mill within about one year of the fire occurrence, or no later than August 2003. After this time the quality of the wood degrades due to the action of agents such as blue stain fungus, wood boring insects and checking (splitting of the tree bole). Consequently commercial value drops significantly, effecting smaller saw-timber sized trees more quickly.

Adjustment #1: Original harvest prescriptions were reviewed on a unit-by-unit basis by the review team including the silviculturist and wildlife biologist. An assessment found that adequate green trees remain in burned over Units 1, 2, 4, and 6 to permit implementation of planned prescriptions with appropriate adjustment as outlined below. Basically, remarking

would be needed to leave green trees that were designated for cut previous to the burn in areas where original green leave trees were burned (killed).

Adjusted layout and marking guides follow:

- Salvage Stands: Treatments specified in the Hollow Timber Sale that were identified as salvage stands should have only the dead and heavily scorched pine removed. The rule for heavy scorch is: if 2/3$^{rds\ or}$ more of the formally live crown was scorched during the fire than it will be considered salvageable and removed, if merchantable. Other pine obviously damaged due to fire, i.e. cat-faced trees that are burned out, and will obviously not survive will also be removed, if not retained as snags. The former prescription will no longer apply.

- Non-Salvage Stands: Stands specified for treatment within the fire area and not identified as "salvage only" should be marked as per original marking guides retaining spacing and basal areas (ba) as specified. In addition, dead and scorched pine using the "2/3rds rule" outlined above will also be removed. In small patches of dead timber where the ba cannot be maintained, retain as much of the green ba as possible, removing the dead and scorched pine.

- Patch clear-cuts: Patch clear-cuts originally specified within the fire area should not be created. Follow the surrounding stand prescription instead. Openings created by the fire will more than substitute for originally prescribed patch clear-cuts.

- Snag Retention: Every effort should be made to leave an average of 4 of the largest dead pine per acre scattered in groups throughout the treatment area and preferably away from roads and travel ways where they could be cut illegally as firewood. Whenever possible leave clumps where they will be sheltered from high winds for longevity. Heavily scorched pine with less than 15% of the green crown left and pines with bole damage work well. They generally take longer to die and tend to produce resin, forming a harder, longer standing snag.

  Note: In areas that will be salvaged as "Designated by Description", the snag recommendations can be achieved by laying out the cutting unit to go around groups of snags along the perimeter of the unit or small patches within the unit if feasible.

Adjustment #2: The SIR review team identified a need to prescribe a specific order of harvest entry into sale units. The order is a prioritization based on the following:

- The intent is to defer harvest in "green" units until the salvageable dead component is removed as discussed below. Table 2 displays all units with the special objectives provided by unit.
- There is a need to harvest units containing dead material as soon as possible to recover value in a timely manner.

- Contractually, removal of most of the dead timber first will be emphasized, prior to approval of operations in predominantly low intensity or no burn "green" units.

In all units listed in Table 2, retain any "live" trees not designated to be cut and with 1/3 or greater live crown, to provide for future snags and other resource needs such as green seed source.

Units must be accepted, and/or approved in writing, prior to entry into units in the next priority. The following are expected changes in harvest sequence per Table 2:

- Salvage the dead first: Remove the dead in the 1st and 2nd priority units first.
- Harvest allowable green volume in the 1st and 2nd priority units after the dead is removed.

Table 2. Order of Harvest Entry

Priority		
1		
2		
3		

*Units may be harvested in any order within priority level.

Adjustment #3: Travel on roads closed to the public within the sale area and burn perimeter is currently hazardous due to high numbers of dead trees that could fall on or adjacent to roads. This poses a significant safety hazard to timber sale contract personnel, and Forest Service administrative personnel who will enter the area. Many or most of these trees are expected to fall within the next five years (Battle RAT Report, pg. 77, 84, 96). There is an opportunity to substantially reduce the magnitude of this hazard by removing dead hazard trees along these roads now, under the sale contract.

A hazard tree is defined here as: one that has 50% or more of the crown scorched, burned tree stumps within 3 feet of a standing tree, 50% or more of the bole burned with streaming pitch, or shows signs of insect activity. In addition, the following guidelines will apply to hazard tree removal:

- Trees uphill from the road will be removed if they are within the length of the tree height plus 20' from the road edge.
- Trees downhill from the road or on level ground will be removed if they are within the length of the tree height from the road edge.
- If the tree is leaning toward the road, it should be removed if within the clearing limits defined above. If a tree is leaning away from the road, it will be left if within clearing limits defined above.
- Retain any live trees with greater than 50% live crown that do not pose safety hazards. These trees will provide for future snags as well as a seed source.

Adjustment #4: Watershed protection requirements apply to the burned units:

- Design skid trails to minimize the concentration of runoff.
- Avoid storage or deposition of slash, log decks, and other materials within drainages.
- Avoid extensive disturbance of residual duff and litter.
- Avoid mechanical disturbance to compactive soils when wet--operate when dry or frozen.
- When falling trees to be retained on site, fall on the contour.
- In high intensity burn areas increase the ground cover by retaining limbs and tops of trees on the ground.
- In moderate intensity burn areas leave woody material to achieve 60% ground cover ("a torturous water path") after harvest completion.
- In low intensity burn areas (where litter and duff layer were consumed) leave enough wood material to provide at least 60% groundcover after harvest completion.
- Operations on slopes in Units 11 and 12 shall utilize forwarders (or method of similar result) to minimize ground disturbance on these slopes.

Changes to Effects Disclosed in the EA:

Based on site reviews by the team silviculturist, wildlife biologists, and documentation in the Final Battle RAT report, an overview of effects of the new information and changed circumstances relative to the timber sale are summarized as follows:

The effects of the Battle Creek Fire on the Hollow Timber Sale are varied. Some units sustained an under burn, killing most of the seedlings and saplings and leaving most of the larger trees undamaged. In other units, the fire burned in a mosaic pattern, killing patches of trees regardless of size. The most severe impact occurred in units that sustained moderate to high fire intensity, killing most if not all of the trees.

Wildlife habitat has been altered and/or eliminated in some areas within the burn. See discussion under cumulative effects below.

The total sale volume has been adjusted due to the changes documented in this SIR—see summary under "Changed Condition #3".

Changes to Cumulative Effects Disclosed in the EA:

Big game hiding cover and thermal cover has been reduced in the burned area. The amount of late-successional forest in the landscape has been reduced. These are habitat components that were present in limited amounts prior to the burn. It will take many years for these characteristics to be restored, regardless of whether or not the actions here are taken. Habitat for woodpeckers dependent on post-fire conditions has been substantially improved, within the fire area and throughout the Forest as a result of recent wildfires, prescribed burns, storm damage, and widespread IPS and mountain pine beetle outbreaks. Salvage of fire-killed trees within the Hollow Sale will not have a measurable effect on woodpecker populations. No impacts to

goshawks are known to have occurred within the burned area. There are no known goshawk nests or associated post fledging areas (PFAs) in the Hollow Timber Sale area. Considerable acreage of fire-killed trees will not be treated (steep slopes, rocky or inaccessible burned areas). Not harvesting all dead trees provides post-fire wildlife and other habitat.

Productivity of the soils in high and moderate intensity burn areas also has been affected, especially where the organic layer was consumed. This can only be regained with time as the organic layer is built up. The retention of merchantable stemwood would not contribute significantly to the buildup of the organic layer. Grasses, forbs, and needle cast from timber stands will contribute significantly more biomass to the organic layer and future productivity. Leaving slash on the ground would also help rebuild the organic layer.

In areas of high burn intensity and steeper slopes, there is an increased potential for soil erosion. Design criteria that avoid concentrating overland flow and connecting disturbed areas to existing channels, utilization of designated drainage crossings for heavy equipment, and avoidance of steep slopes should minimize this potential.

Within all areas that were burned, fuels were reduced to varying degrees. The potential for wildfire in these areas has been reduced in the short term. However, over time as dead trees fall to the ground and new trees begin to grow, the fire hazard will increase due to the combination of high dead fuel loads and flashy young pine fuels. The result of a wildfire reburning in these areas could be significant damage to soils and other resources. Further, fire suppression efforts would be hampered within this wildland-urban interface area because the heavy fuel loads would impede access and fireline construction.

Some of the area that has burned is along the Highway 16 corridor, a heavily traveled route that carries visitors toward Mount Rushmore and the surrounding Black Hills. The visual impact of the fire would be partially mitigated through salvage of the fire-killed trees. Other burned areas would remain and provide for visual and other diversity on the landscape.

Silviculturally, there is a need for adjustments to unit boundaries and prescriptions in order to meet Forest Plan goals and objectives. Specifically, some prescriptions have been adjusted to leave more green trees in the area than would occur under the initial prescriptions. There are two cases where this adjustment has been made: 1) green (live) trees that were initially designated as cut trees will be left to replace fire killed trees that were designated for leave but will now be cut instead; 2) areas that were to be patch cut will now be commercially thinned instead because there is now less need to provide for openings in the area. Both of these changes will leave more green (live) trees than the initial prescription in order to better meet silvicultural, wildlife and other objectives. The Battle Creek Fire has reduced the potential for natural regeneration to occur in some areas. In areas of high and moderate burn intensity, a large percentage of the pines have been killed. Some residual seed in areas where the organic soil layer remains will provide some regeneration. But future growth could be dependent upon pine seeding and/or possibly planting. Also, adjustments made to the prescriptions that will retain green trees within burned areas will provide a seed source for future regeneration.

No additional changes to the road system would be necessary to remove the fire-killed trees.

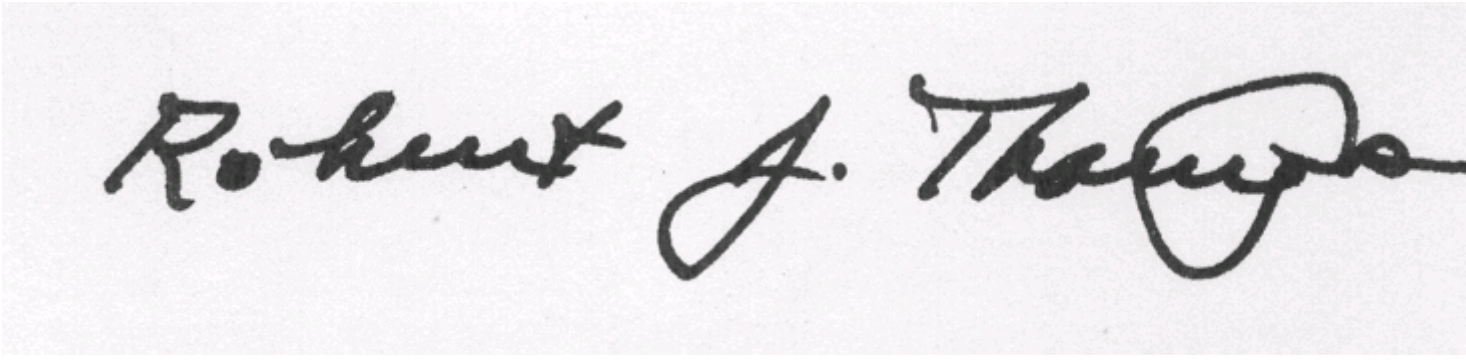
Conclusion:

After reviewing the information above, I have determined that the environmental effects of implementing this project as summarized herein are within the scope of those analyzed in the Hollow EA. This project was designed to implement goals and objectives specified by the Forest Plan. This project continues to contribute to the management area emphasis, which is predominantly wood fiber production. Deficiencies identified in the EA Purpose and Need include pine encroachment in meadows and hardwoods (which reduce vegetative diversity and forage production). These have likely benefited from the burn. Irrespective of the changes resulting from the fire, I believe this project will still contribute toward implementing the Forest Plan goals and objectives as originally intended. Thus, I see no need to change the original decision.

Determination

This completes my review of this supplemental information for the Hollow Timber Sale portion of the Hollow Environmental Assessment and Decision. I have reviewed the information furnished by the review team in this report, attachments and materials incorporated by reference.

It is clear that the circumstances have changed from those under which the original analysis was conducted and decision made. However, the information in this SIR does not present a significantly different picture of the impacts of the action than those presented in the EA. This project was designed to implement goals and objectives in the Forest Plan. I believe this project as adjusted will still contribute toward implementing those goals and objectives. The project, as adjusted, adequately responds to the four key issue categories addressed in the EA. The adjustments in implementation described in this report will result in environmental impacts comparable to the levels analyzed and disclosed in the EA supporting that decision. I believe these adjustments are not of a scale and scope that require a supplemental environmental assessment.



11/01/02

ROBERT J. THOMPSON Date
District Ranger

Attachments and References

Attachments

Timber sale area map
Fire intensity map (Hollow TS)

Persons interested in the maps should contact the Mystic Ranger District at 605-343-1567.

References

The Hollow Environmental Assessment and Decision Notice
Final Battle Creek Fire Rapid Assessment Team (Battle RAT) Report, Black Hills National Forest, September 2002.